

REMARKS

Claims 15-47 stand rejected on the ground of obviousness over Bendel et al and over the combination of Bendel et al and Davis. The independent claims 15, 26 and 37 have been amended so that each of the independent claims specifies positively (a) that the gripping element is deformable from a non-deformed condition to a deformed condition on gripping an article, (b) that the deformable gripping element remains in its deformed condition on releasing the article, and (c) that the gripping element must be heated to return to its non-deformed condition after releasing the article.

Limitations (b) and (c) have been included in the independent claims in response to the examiner's comments at page 3, lines 17-22 of the Office Action. Based on these comments, applicant believes that the examiner will agree that the independent claims distinguish the invention over the disclosure of Bendel et al. Further, applicant submits that it would not have been obvious to a person of ordinary skill in the art to modify the needle holder of Bendel et al by providing that the insert I remains in its deformed condition on releasing the needle and the insert I must be heated to return to its nondeformed condition after releasing the needle. In this regard, applicant respectfully points out that nitinol, which is the material of the inserts I disclosed by Bendel et al, can exist in two distinct forms, one being the shape memory form and the other being the superelastic form. Bendel et al states at column 3, lines 56-63 that the nitinol has a low modulus of elasticity and a high yield strength, which allows the insert to deform around the needle and, after the needle is released, the insert I resumes its original shape. Since Bendel et al does not state or suggest that it is necessary to heat the insert in order for the insert to resume its original shape, the clear implication is that the nitinol is in the superelastic form, not the shape memory form. The independent claims each recite that the gripping element requires that it be heated to return to its

nondeformed condition after releasing the article, which requires the material to be in the shape memory form. Bendel et al does not disclose or suggest that the inserts I should be made from nitinol in the shape memory form.

The examiner relies on Davis as suggesting that the inserts I of Bendel et al should have functional porosity in order to enhance the speed of recovery of the insert after deformation. Applicant respectfully disagrees. The vast difference between the field of use of the shape memory alloy referred to by Davis and the field of use with which Bendel et al is concerned make it highly questionable whether it would have been obvious to apply any teaching of Davis to the needle holder of Bendel et al. The examiner has attempted to address this point by suggesting that it would be desirable to increase the speed of recovery of the insert I of Bendel et al after deformation, but the examiner has not asserted (a) that the speed of recovery of nitinol in the superelastic form used by Bendel et al is deficient or (b) that it follows from the disclosure by Davis (relating to a shape memory alloy) that the speed of recovery of nitinol in the superelastic form (as opposed to the shape memory form) would be improved by providing voids. Further, even if a person of ordinary skill in the art considered it obvious to provide the nitinol inserts disclosed by Bendel et al with the voids disclosed by Davis, the resulting structure would not be in accordance with the independent claims because Bendel et al teaches that the nitinol should be in the superelastic form, not the shaped memory form.

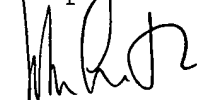
Although Davis discloses a shape memory alloy with voids, it would not have been obvious to a person of ordinary skill in the art to use nitinol in the shape memory form in the inserts I of Bendel et al because there is no suggestion in the prior art to support such a use. Davis is concerned with use of a shape memory alloy with voids to bring about a change of shape that will take place suddenly and only on application of heat. The record does not establish any reason why this behavior should be

desirable in the case of the inserts I shown by Bendel et al, which will resume their original shape spontaneously after release of the needle.

In addition, Davis is clear on the mechanism by which the voids in the shape memory alloy result in heat generation and accelerated recovery. The paragraph starting at column 8, line 59 explains that the temperature rise (which accelerates recovery) occurs because the voids in the shape memory alloy collapse when the projectile strikes a target, increasing the plastic work done and generating heat in the alloy. The examiner has not asserted that this mechanism for heat generation would have any effect in the needle holder of Bendel et al, regardless of the form (shape memory or superelastic) of the nitinol of which the insert I is made.

In view of the foregoing, applicant submits that the independent claims 15, 26 and 37 are patentable over Bendel et al and Davis, whether taken singly or in combination. It follows that the dependent claims also are patentable.

Respectfully submitted,



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